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UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION II
EDISON, NEW JERSEY 08837

October 30, 1990

Mr. & Mrs. Tielmann
257 New Vernon Road
Gillette, NJ 07933

Dear Mr. & Mrs. Tielmann,

On September 11, 1990, the Environmental Protection Agency (EPA) had Clayton, Environmental inspect several structures on your property for Asbestos Containing Materials (ACM). The objective of these inspections were to identify ACM that could interfere with future sampling at the New Vernon Road site. The certified inspector used nondestructive techniques to collect 34 bulk samples from two houses, three sheds and a garage. Also, air monitoring was performed to establish a baseline prior to removal activities.

Enclosed is the laboratory results from the sampling on September 11, 1990. No ACM was identified in the main dwelling, the garage or in two of the sheds. As part of the removal action, the other shed has been dismantled.

The unoccupied house (Dwelling 2) undergoing renovation has several sources of ACM and levels as high as 70% asbestos. Three forms of asbestos (chrysotile, amosite and crocidolite) have been detected. Some of the ACM in the unoccupied house was described as highly friable, easily accessible and in poor condition by the inspector.

The ACM identified in the house undergoing renovations is comprised of the existing building materials and is not associated with the asbestos wastes dumped at this site. The EPA recommends that you take actions immediately to address the current conditions in this house. In order to reduce your liability, it is advisable that you seek professional consultation.

If you have any questions concerning the sampling, please contact me at (201) 321-6694.

Sincerely,

Michael P. Neill

Michael P. Neill, On-Scene Coordinator
Removal Action Branch

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# APPENDIX A

# ANALYTICAL RESULTS

Table 1

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Analytical Results of Area Air Sampling for
Airborne Fibers
at
257 New Vernon Road
Meyersville, New Jersey
for
OH Materials Corporation

Clayton Project No. 31204.00/F-19615

September 11, 1990

| Sample Number | Sample Location | Sampling Period Start | Sampling Period Stop | Air Volume (liters) | Airborne Fiber Concentration (f/cc) |
|---|---|---|---|---|---|
| OHM-0911-1 (139285) | Corner where South Driveway and New Vernon Road Meet | 0841 | 1622 | 1268 | 0.002 |
| OHM-0911-2 (139286) | Approximately 30 Feet South-West of Shed 1, Approximately 20 Feet from New Vernon Road | 0845 | 1621 | 1277 | <0.002 |
| OHM-0911-3 (139287) | South Corner of Property Line, Approximately 5 Feet from New Vernon Road | 0850 | 1618 | 1232 | <0.002 |
| OHM-0911-4 (139288) | Corner where North Driveway and New Vernon Road Meet | 0855 | 1625 | 1283 | <0.002 |
| OHM-0911-5 (139289) | Northeast Corner of Residence 1, outside Fence | 0900 | 1628 | 1232 | <0.002 |
| OHM-0911-6 (139290) | Approximately 10 Feet Northwest of Corner of Shed 2, at East End of North Driveway | 0906 | 1632 | 1227 | <0.002 |
| OHM-0911-7 (139291) | Approximately 5 Feet Southeast of Shed 3, Approximately 20 Feet Northeast of Garage | 0910 | 1635 | 1224 | <0.002 |
| OHM-0911-8 (139292) | South Trail, Directly South of Garage | 0917 | 1639 | 1216 | <0.002 |
| OHM-0911-9 (139293) | East End of South Driveway, Edge of Trail leading to North Driveway | 0927 | 1642 | 1218 | <0.002 |
| OHM-0911-10 (139294) | South Side of Residence at Entrance to Basement | 0940 | 1645 | 1211 | <0.002 |

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**Table 1**

**Analytical Results of Area Air Sampling for Airborne Fibers at 257 New Vernon Road Meyersville, New Jersey for OH Materials Corporation**

**Clayton Project No. 31204.00/F-19615**

**September 11, 1990**

| Sample Number | Sample Location | Sampling Period Start | Sampling Period Stop | Air Volume (liters) | Airborne Fiber Concentration (f/cc) |
|---|---|---|---|---|---|
| OHM-0911-11 (139295) | Inside Residence, 1st Floor in Kitchen, Edge of Counter | 1120 | 1340 | 1848 | 0.001 |

"<" means less than.
f/cc means fibers per cubic centimeter of air.

Analytical Method: NIOSH 7400, A Rules
Limit of Detection: 2,000 fibers per filter

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| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| OHM-0911-11 | 29679 | 1,848 | 40 | 0 | 0 | 0 | 1.9 | <1.9 | <0.00040 |
| OHM-0911-Blank | 29680 | Blank | 10 | 0 | 0 | 0 | 7.7 | <7.7 | --- |

Chrys: Chrysotile Asbestos Amph: Amphibole Asbestos F: fibers >5µm length, >0.25 µm diameter, ≥ 3:1 length:width

Analytical Method: NIOSH 7402, May 15, 1989.

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| | | |
|---|---|---|
| (139253) | | |
| OHM-0911-102 (139254) | Settled Dust, Basement, South, near Stairs | NAD |
| OHM-0911-103 (139255) | Settled Dust, Basement, Center | NAD |
| OHM-0911-104 (139256) | Settled Dust, Basement, North Rear, near Doorway | NAD |
| OHM-0911-118 (139283) | Sheetrock on Floor, Basement, Center in Walkway, on Floor | NAD |

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Table 3

Analytical Results of Bulk Material Sampling for Asbestos
at
257 New Vernon Road
Meyersville, New Jersey
for
OII Materials Corporation

Clayton Project No. 31204.00/F-19615

September 11, 1990

| Sample Number | Sample Location/Description | Asbestos Content (Percent and Type) | Condition | Description of Material Accessibility | Friability |
|---|---|---|---|---|---|
| | **DWELLING 2** | | | | |
| OHM-0911-105A (139257) | White Fibrous Insulation, 1st Floor, Inside North Wall | Layer 1: 75 Chrysotile<br>Layer 2: 65 Chrysotile<br>Total Asbestos: 70 | Poor | Easy | High |
| OHM-0911-105B (139258) | White Fibrous Insulation, 1st Floor, inside South Ceiling near Doorway | NAD | | | |
| OHM-0911-105C (139259) | White Fibrous Insulation, 2nd Floor, Inside North Wall | Layer 1: NAD<br>Layer 2: NAD<br>Total Asbestos: NAD | | | |
| OHM-0911-106A (139260) | Black Covering on Fibrous Insulation, 1st Floor, North Wall | NAD | | | |
| OHM-0911-106B (139261) | Black Covering on Fibrous Insulation, 1st Floor, East Wall near Door | NAD | | | |
| OHM-0911-106C (139262) | Black Covering on Fibrous Insulation, 1st Floor, East Wall, North Side | NAD | | | |

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Table 3

Analytical Results of Bulk Material Sampling for Asbestos
at
257 New Vernon Road
Meyersville, New Jersey
for
OH Materials Corporation

Clayton Project No. 31204.00/F-19615

September 11, 1990

| Sample Number | Sample Location/Description | Asbestos Content (Percent and Type) | Condition | Description of Material Accessibility | Friability |
|---|---|---|---|---|---|
| | **DWELLING 2** | | | | |
| OHM-0911-107A (139263) | Upper Layer of Floor Covering, 1st Floor, South Area near Doorway | Layer 1: 60 Chrysotile<br>Layer 2: 50 Chrysotile<br>Layer 3: NAD<br>Total Asbestos: 45 | Poor | Easy | Moderate |
| OHM-0911-107B (139264) | Floor Covering, Upper Layer, 1st Floor, Northeast End | Layer 1: 55 Chrysotile<br>Layer 2: NAD<br>Layer 3: NAD<br>Layer 4: NAD<br>Total Asbestos: 30 | Poor | Easy | Moderate |
| OHM-0911-108A (139265) | Floor Tile, 2nd Layer, 1st Floor, Southeast Room | Layer 1: NAD<br>Layer 2: NAD<br>Total Asbestos: NAD | | | |
| OHM-0911-108B (139266) | Floor Tile, 2nd Layer, 1st Floor, Southeast Room | Layer 1: NAD<br>Layer 2: NAD<br>Total Asbestos: NAD | | | |

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Table 3

Analytical Results of Bulk Material Sampling for Asbestos
at
257 New Vernon Road
Meyersville, New Jersey
for
OH Materials Corporation

Clayton Project No. 31204.00/F-19615

September 11, 1990

| Sample Number | Sample Location/Description | Asbestos Content (Percent and Type) | Condition | Description of Material Accessibility | Friability |
|---|---|---|---|---|---|
| | **DWELLING 2** | | | | |
| OHM-0911-109A (139267) | Floor Tile, 2nd Layer, 1st Floor, Northeast Room | | | | |
| | | Layer 1: 10 Chrysotile | | | |
| | | Layer 2: NAD | | | |
| | | Total Asbestos: 10 | Poor | Moderate | Low |
| OHM-0911-109B (139268) | Floor Tile, 2nd Layer, 1st Floor, Northeast Room | | | | |
| | | Layer 1: 10 Chrysotile | | | |
| | | Layer 2: NAD | | | |
| | | Total Asbestos: 10 | Poor | Moderate | Low |
| OHM-0911-110A (139269) | Plaster Material, 1st Floor, Southeast Area, North Dividing Partition | | | | |
| | | Layer 1: NAD | | | |
| | | Layer 2: NAD | | | |
| | | Total Asbestos: NAD | | | |
| OHM-0911-110B (139270) | Plaster Material, 1st Floor, North Area, North Wall | | | | |
| | | NAD | | | |

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Table 3

Analytical Results of Bulk Material Sampling for Asbestos
at
257 New Vernon Road
Meyersville, New Jersey
for
OII Materials Corporation

Clayton Project No. 31204.00/F-19615

September 11, 1990

| Sample Number | Sample Location/Description | Asbestos Content (Percent and Type) | Condition | Description of Material Accessibility | Friability |
|---|---|---|---|---|---|
| | **DWELLING 2** | | | | |
| OIIM-0911-110C (139271) | Plaster Material, 2nd Floor, North Area, Ceiling | | | | |
| | | Layer 1: NAD | | | |
| | | Layer 2: NAD | | | |
| | | Layer 3: 2 Amosite | | | |
| | | Layer 4: NAD | | | |
| | | Layer 5: 2 Crocidolite | | | |
| | | Total Asbestos: < 1 | Poor | Easy | Low |
| OIIM-0911-111A (139272) | Shingles, Basement, North Wall | | | | |
| | | Layer 1: NAD | | | |
| | | Layer 2: NAD | | | |
| | | Layer 3: NAD | | | |
| | | Total Asbestos: NAD | | | |
| OIIM-0911-111B (139273) | Shingles, Basement, North Wall | | | | |
| | | Layer 1: NAD | | | |
| | | Layer 2: NAD | | | |
| | | Layer 3: 75 Chrysotile | | | |
| | | Total Asbestos: < 1 | Fair | Easy | Low |
| OIIM-0911-112A (139274) | Roofing Felt Material, Basement, East Wall near Stairwell leading to Outside | NAD | | | |

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Table 3

Analytical Results of Bulk Material Sampling for Asbestos
at
257 New Vernon Road
Meyersville, New Jersey
for
OH Materials Corporation

Clayton Project No. 31204.00/F-19615

September 11, 1990

| Sample Number | Sample Location/Description | Asbestos Content (Percent and Type) | Condition | Description of Material Accessibility | Friability |
|---|---|---|---|---|---|
| | **DWELLING 2** | | | | |
| OHM-0911-113A (139275) | Brown Mastic Material on Floor, 2nd Floor, Southeast Room | NAD | | | |
| OHM-0911-113B (139276) | Brown Mastic Material, 2nd Floor, Southeast Room | | | | |
| | | Layer 1: NAD | | | |
| | | Layer 2: NAD | | | |
| | | Total Asbestos: NAD | | | |
| OHM-0911-118A (139284) | Blue Fibrous Insulation Material, 2nd Floor, Inside North Ceiling | | | | |
| | | Layer 1: 5 Amosite | | | |
| | | Layer 2: 60 Crocidolite | | | |
| | | Total Asbestos: 65 | Poor | Easy | High |
| | **GARAGE** | | | | |
| OHM-0911-114A (139277) | Roof Shingles, Storage, Upper Floor | | | | |
| | | Layer 1: NAD | | | |
| | | Layer 2: NAD | | | |
| | | Total Asbestos: NAD | | | |
| OHM-0911-115A (139278) | Roofing Felt Material, Stored, Upper Floor | NAD | | | |

Table 3

Analytical Results of Bulk Material Sampling for Asbestos
at
257 New Vernon Road
Meyersville, New Jersey
for
OH Materials Corporation

Clayton Project No. 31204.00/F-19615

September 11, 1990

| Sample Number | Sample Location/Description | Asbestos Content (Percent and Type) | Condition | Description of Material Accessibility | Friability |
|---|---|---|---|---|---|
| | **GARAGE** | | | | |
| OHM-0911-116A (139279) | Roofing Felt on Window, 1st Floor, Northwest Corner Window | NAD | | | |
| | **SHED 1 (NEXT TO DWELLING 1)** | | | | |
| OHM-0911-117A (139280) | Roofing Material, Northeast Corner | | | | |
| | | Layer 1: NAD | | | |
| | | Layer 2: NAD | | | |
| | | Layer 3: NAD | | | |
| | | Total Asbestos: NAD | | | |
| OHM-0911-117B (139281) | Roofing Material, Southwest Corner | | | | |
| | | Layer 1: NAD | | | |
| | | Layer 2: NAD | | | |
| | | Layer 3: NAD | | | |
| | | Total Asbestos: NAD | | | |

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Table 3

Analytical Results of Bulk Material Sampling for Asbestos
at
257 New Vernon Road
Meyersville, New Jersey
for
OH Materials Corporation

Clayton Project No. 31204.00/F-19615

September 11, 1990

| Sample Number | Sample Location/Description | Asbestos Content (Percent and Type) | Condition | Description of Material Accessibility | Friability |
|---|---|---|---|---|---|
| | SHED 1 (NEXT TO DWELLING 1) | | | | |
| OHM-0911-117C (139282) | Roofing Material, Southwest Corner | | | | |
| | | Layer 1: NAD | | | |
| | | Layer 2: NAD | | | |
| | | Total Asbestos: NAD | | | |

Analytical Method: U.S. EPA; "Interim Method for the Determination of Asbestos in Bulk Insulation Samples"; EPA-600/M4-82-020; December, 1982.

Percentages are visual estimates based on volume.

Limit of Detection: <1%
Limit of Quantitation: 1%

NOTE: The reliable limit of quantitation of the method is 1%, although asbestos may be qualitatively detected at concentrations less than 1%. Samples for which asbestos is detected at <1% are reported as "trace, <1%." No asbestos detected (NAD) indicates that no fibers were observed.

Clayton's Edison, New Jersey laboratory is accredited by the National Institute of Standards and Technology's National Voluntary Laboratory Accreditation Program (NVLAP Lab No. 1125-02). This test report relates only to the items tested and may not be used to claim product endorsement by NVLAP or any agency of the U.S. Government.

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The tables in this Appendix include the following information:

(A) Material Sampled

A physical description of the material sampled in the assessed building or structure.

(B) Location of Material in Building

The location of the material (e.g., pipe wrap or joint insulation) in the assessed building or structure

(C) Condition

The condition of the material present, which was subjectively evaluated by the investigator (e.g., good, fair, or poor)

(D) Accessibility

Accessibility to the material was evaluated as:

- S (Staff only)--materials behind locked doors (e.g., boiler rooms) and materials above dropped ceilings (e.g., pipe joint wrap)
- M (Moderate)--materials which can be seen but not reached without some effort (e.g., high ceilings).
- E (Easy)--materials within the employees' reach (e.g., low ceilings, stairwell ceilings, wrap on pipes).

(E) Friability

The ability of a material, when dry, to be crumbled, pulverized, or reduced to powder by hand pressure. Friability was subjectively evaluated by the investigator as low, moderate, or high.

(F) Field Identification

The first letters in the column are an abbreviation for the client. The number is the material identification number assigned by the Clayton investigator. At least three representative samples were collected for each type of friable or suspect material sampled as material content is not always uniform.

(G) Sample Location

The physical location where the sample was collected in the assessed building or structure.

(H) Estimated Percentage and Type

The numbers indicated the percentage of each typed of asbestos present in the sample. Percentages are not reported for materials not containing asbestos.

Values reported as less than 1 percent indicate that asbestos was identified; however, it was not identified in sufficient amounts for quantification by this method.

# APPENDIX B

## SAMPLING AND ANALYTICAL METHODS

# AIRBORNE FIBER SAMPLING AND ANALYSIS
# NIOSH METHOD 7400
# A Rules

Samples for the determination of airborne fibers were collected by drawing air at measured flowrates through open-face cassettes containing 25-millimeter diameter cellulose ester membrane filters using battery- and electrically-powered portable sampling pumps. Pumps were calibrated before and after sampling to determine and verify flowrates.

Samples were collected with the filter face downward. Area samples were positioned so that the filter is between three and six feet above the floor to approximate workers' breathing zone. Unless otherwise mentioned in the sample description, all area samples are collected at fixed locations throughout the sampling period.

Each sample was analyzed for fibers using the microscopic technique currently specified by the National Institute for Occupational Safety and Health (NIOSH). The technique is as follows: a half-moon shaped sector of each filter is carefully cut from the sample and mounted on a standard microscopy slide, using a mixture of diethyl oxalate and dimethyl phthalate to render the filter transparent.

Fibers, defined as particles having aspect rations (apparent length to width) of 3 or greater, which were observable on the surface of the filter, were counted using a binocular microscope equipped with 10X eyepieces and a 40X objective with phase contrast illumination. Walton-Beckett graticule fields selected at random on the sample were examined, and fibers greater than 5 micrometers in length were counted until either of two conditions was satisfied:

1. A minimum of 100 fibers were counted in 20 or more fields.

2. A minimum of 100 fields were examined.

Results of the microscopic analysis are used in conjunction with field sampling data (measured flowrates and durations of sampling) to calculate the concentrations of the airborne fibers corresponding to each sample in units of fibers grater than 5 micrometers in length per cubic centimeter of air.

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# METHOD FOR ANALYSIS OF AIRBORNE ASBESTOS FIBERS USING TRANSMISSION ELECTRON MICROSCOPY (TEM) BY THE NIOSH 7402 METHOD

Upon receipt in the laboratory, filters are transferred to a glass slide with a drop of dimethyl formamide/acetic acid clearing solution. After clearing, samples are partially ashed in a plasma ashed. The filters are then carbon coated in a vacuum evaporator. Portions of the cleared/ashed/coated filters are excised and placed on 200-mesh copper TEM grids in a wick-type solutional washer containing 100% dimethyl formamide.

Two grids are placed consecutively in the TEM for examination. Twenty openings are examined on each grid at approximately 4,000X magnification. Asbestos structures containing fibers which meet a >3:1 length:width aspect ratio, a diameter greater than 0.25 micrometers, and a length greater than 5 micrometers are identified using morphology, selected area electron diffraction, and energy-dispersive x-ray spectroscopy. Fibers are sized (length and width) and are identified as chrysotile, amphibole, ambiguous, or nonasbestos.

Results are reported as total asbestos fibers per square millimeter of filter and asbestos fibers per cubic centimeter of air (asbestos fibers/cc).

NIOSH, Method 7402 for Asbestos, May 15, 1989

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# METHOD OF ANALYSES FOR ASBESTOS BULK USING POLARIZED-LIGHT MICROSCOPY (PLM)

When a bulk asbestos sample is received, several representative portions of the sample are removed and put into a labeled petri dish. The sample parts are examined through a stereobinocular microscope and fibers are extracted using forceps. These extracted fibers are then placed on a microscope slide and mounted using a refractive index solution [high dispersion (HD) Cargille liquid].

After being mounted, the fibers are identified using polarized-light microscopy (PLM), supplemented by dispersion staining.[1] After fiber identification by PLM, an estimation is made as to the percentage (area) composition of asbestos. The estimated percentages are based on size, number, shape, and density of each of the components, and comparison to a standard set of samples previously quantitated by the interim Research Triangle Institute (RTI) method.[2]


1 McCrone, Walter C., The Asbestos Particle Atlas, Ann Arbor Science Publishers, Inc., 1980.

2 Research Triangle Institute, Interim Method for the Determination of Asbestiform Minerals in Bulk Insulation Samples, pp. 8-12, 1982.


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